MUNCHKIN

CONTENDER

Gas-fired Hot Water Circulating Heater

User Manual

GAS-FIRED

c UL LISTED

MH18082

CONTROLS

C SA US

HEAT TRANSFER PRODUCTS, INC.

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PRODUCT AND SAFETY INFORMATION

SPECIAL ATTENTION BOXES

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important information concerning the product.

DEFINITIONS

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ CAUTION

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

⚠ WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch: do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department. Installation and service must be performed by a qualified installer, service agency or the gas supplier.

NOTICE

Heat Transfer Products, Inc., reserves the right to make product changes or updates without notice and will not be held liable for typographical errors in literature.

PRODUCT AND SAFETY INFORMATION (CONT'D)

⚠ WARNING

User — Have this heater serviced/inspected by a qualified service technician annually.

⚠ WARNING

Failure to adhere to the guidelines on this page can result in severe personal injury, death or substantial property damage.

⚠ WARNING

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas suppliers' instructions.
- If you cannot reach your gas supplier, call the fire department.

HEATER OPERATION

- Do not block flow of combustion or ventilation air to the heater.
- Should overheating occur or gas supply fail to shut off, do not turn off or disconnect electrical supply to circulator. Instead, shut off the gas supply at a location external to the appliance.
- Do not use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of the control system and any gas control that has been under water.

PRIMARY WATER

- If you have an old system with cast iron radiators, thoroughly flush the system (without heater connected) to remove sediment. The high-efficiency heat exchanger can be damaged by build-up or corrosion due to sediment.
- Do not use petroleum-based cleaning or sealing compounds in heater system. Gaskets and seals in the system may be damaged. This can result in substantial property damage.
- Do not use "homemade cures" or "boiler patent medicines." Substantial property damage, damage to boiler, and/or serious personal injury may result.
- Continual fresh make-up water will reduce heater life. Mineral buildup in heat exchanger reduces heat transfer, overheats the stainless steel heat exchanger, and causes failure. Addition of oxygen carried in by make-up water can cause internal corrosion in system components. Leaks in heater or piping must be repaired at once to prevent make-up water.

FREEZE PROTECTION FLUIDS

⚠ CAUTION

NEVER use automotive or standard glycol antifreeze, even ethylene glycol made for hydronic systems. Use only inhibited propylene glycol solutions, which are specifically formulated for hydronic systems. Ethylene glycol is toxic and can attack gaskets and seals used in hydronic systems.

SECTION I – COMBUSTION AIR – PREVENTION OF CONTAMINATION

⚠ WARNING

If the Munchkin Contender combustion air inlet is located in any area likely to cause or contain contamination, or if products, which would contaminate the air cannot be removed, the combustion air must be re-piped and terminated to another location. Contaminated combustion air will damage the unit and its burner system, resulting in possible severe personal injury, death or substantial property damage.

⚠ WARNING

Do not operate a Munchkin Contender unit if its combustion air inlet or the unit is located in or near a laundry room or pool facility. These areas will always contain hazardous contaminates.

Pool and laundry products and common household and hobby products often contain fluorine or chlorine compounds. When these chemicals pass through the burner and vent system, they can form strong acids. These acids can create corrosion of the heat exchanger, burner components and vent system, causing serious damage and presenting a possible threat of flue gas spillage or water leakage into the surrounding area.

AREAS LIKELY TO FIND THESE PRODUCTS

Products to avoid
Spray cans containing fluorocarbons
Permanent wave solutions
Chlorinated waxes/cleaners
Chlorine-based swimming pool chemicals
Calcium chloride used for thawing
Sodium chloride used for water softening
Refrigerant leaks
Paint or varnish removers
Hydrochloric acid/muriatic acid
Cements and glues
Antistatic fabric softeners used in clothes dryers
Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms
Adhesives used to fasten building products and other similar products
Areas likely to have contaminants
Dry cleaning/laundry areas and establishments
Swimming pools
Metal fabrication plants
Beauty shops
Refrigeration repair shops
Photo processing plants
Auto body shops
Plastic manufacturing plants
Furniture refinishing areas and establishments
New building construction
Remodeling areas
Garages and workshops

SECTION II – MAINTENANCE SCHEDULE

SERVICE TECHNICIAN

On an annual basis the following maintenance should be performed by a qualified service technician:

General

- Attend to any reported problems.
- Inspect the interior of the heater jacket area; clean and vacuum if necessary.
- Clean the condensate trap and fill with fresh water.
- Check for leaks: water, gas, flue and condensate.
- Verify flue vent piping and air inlet piping are in good condition and sealed tight.
- Check heater water pressure, piping and expansion tank.
- Check control settings.
- Check ignition electrode (use Scotch Brite Pad and sand off any white oxide; clean and reposition).
- Check ignition wiring and ground wiring.
- Check all control wiring and connections.
- Check burner flame pattern (stable and uniform) and flame.

Additional items if combustion or performance is poor:

- Clean heat exchanger and flue ways.
- Remove burner assembly and clean burner

SECTION II – MAINTENANCE SCHEDULE (CONT'D)

head using compressed air only.

Once the maintenance items are completed, review the service with the owner.

OWNER MAINTENANCE

Periodically:

- Check the area around the unit.
- Check and remove any blockage from the combustion air inlet and ventilation openings.
- Check the temperature/pressure gauge

Monthly:

- Check vent piping.
- Check combustion air inlet piping.
- Check the pressure relief valve.
- Check the condensate drain system.

Every 6 months:

- Check heater piping and gas supply piping for corrosion or potential signs of leakage.

⚠ WARNING

Follow the maintenance procedures given throughout this manual. Failure to perform the service and maintenance or follow the directions in this manual could result in damage to the Munchkin Contender or in system components, resulting in severe personal injury, death or substantial property damage.

SECTION III – MAINTENANCE PROCEDURES

⚠ WARNING

The Munchkin Contender must be inspected and serviced annually, preferably at the start of the heating season, by a qualified service technician. In addition, the maintenance and care of the heater as outlined on page 3 and further explained on pages 4 through 6 must be performed to assure maximum efficiency and reliability of the unit. Failure to service and maintain the Munchkin Contender and the system components could result in equipment failure, causing possible severe personal injury, death or substantial property damage.

NOTICE

The following information provides detailed instruction for completing the maintenance items outlined in the maintenance schedule in Section II. In addition to this maintenance, the Munchkin Contender should be serviced at the beginning of the heating season by a qualified service technician.

DAILY MAINTENANCE

Check the surrounding area

⚠ WARNING

To prevent potential of severe personal injury, death or substantial property damage, eliminate all the materials listed in Section I from the area surrounding the unit and from the vicinity of the combustion air inlet. If contaminates are found: Remove products immediately from the area. If they have been there for an extended period, call a qualified service technician to inspect the unit for possible damage from acid corrosion.

If products cannot be removed, immediately call a qualified service technician to re-pipe the combustion air inlet piping and locate the combustion air intake away from the contaminated areas.

1. Combustible / flammable materials - Do not store combustible materials, gasoline or other flammable vapors or liquids near the unit. Remove immediately if found.
2. Air contaminates - Products containing chlorine or fluorine, if allowed to contaminate the combustion air, will cause acidic condensate within the unit. This will cause significant damage to the unit. Read the list of potential materials listed in Section I of this manual. If any of these products are in the room where the boiler is located, they must

SECTION III – MAINTENANCE PROCEDURES (CONT'D)

be removed immediately or the combustion air intake must be relocated to another area.

Check Combustion Air Inlets

Verify that the unit's vent termination and combustion air intake are clean and free of obstructions. Remove any debris on the air intake or flue exhaust openings. If removing the debris does not allow the unit to operate correctly, contact your qualified service technician to inspect the unit and the vent / combustion air system.

Check Temperature display and Pressure Gauge

1. Ensure the pressure reading on the pressure gauge does not exceed 25 psig. Higher pressure readings may indicate a problem with the expansion tank.
2. Ensure the temperature on the LED display panel does not exceed 180°F. Higher temperature readings may indicate a problem with the operating thermostat controls.
3. Contact a qualified service technician if problem persists.

MONTHLY MAINTENANCE

Check Vent Piping

1. Visually inspect the flue gas vent piping for any signs of blockage, leakage or deterioration of the piping. Notify a qualified service technician immediately if any problems are found.

⚠ WARNING

Failure to inspect the venting system as noted and have it repaired by a qualified service technician can result in the vent system failure, causing severe personal injury or death.

Check Intake Air Vent Piping

1. Visually inspect the intake air vent piping for any signs of blockage. Inspect the entire length of the intake air vent piping to ensure piping is intact and all joints are properly sealed.
2. Notify a qualified service technician if any problems are found.

Check Pressure Relief Valve

1. Visually inspect the primary pressure relief valve and the relief valve discharge pipe for signs of weeping or leakage.
2. If the pressure relief valve often weeps, the expansion tank may not be operating properly. Immediately contact a qualified service technician to inspect the unit and system.

Check Vent Condensate Drain System

1. While the unit is running, check the discharge end of the condensate drain tubing. Ensure no flue gas is leaking from the condensate drain tubing or tee connection by holding your fingers near the opening.
2. If you notice flue gas leaking from the opening, this indicates a dry condensate drain trap. Fill the condensate trap assembly. Contact a qualified service technician to inspect the unit and condensate line and refill the condensate trap if problem persists regularly.
3. The Service Technician must ensure the condensate drain line is not blocked by pouring water through the plug port on the condensate drain assembly. The water should flow out of the end of the drain line. If water does not appear at the end of the drain line, the qualified service technician must clean the condensate line.
4. To fill the condensate drain assembly, remove the cup from the condensate assembly. Slowly pour water into the cup assembly until water appears at the end of the drain line. Stop filling and replace cup.

⚠ WARNING

You must make sure the condensate cup is securely fastened before restarting heater. Do a final check to assure proper flow.

SECTION III – MAINTENANCE PROCEDURES (CONT'D)

6-MONTH MAINTENANCE

Check primary and gas piping

1. Remove the heater cover and perform a gas leak inspection following Operating Instructions in Section IV. If gas odor or leak is detected, immediately shut down the unit following procedures on page 8. Call a qualified service technician.
2. Visually inspect for leaks around the internal heater water connections and around the heat exchanger. Visually inspect the external system piping, circulators, and system components and fittings. Immediately call a qualified service technician to repair any leaks.

⚠ WARNING

Have leaks fixed at once by a qualified service technician. Failure to comply could result in severe personal injury, death or substantial property damage.

Operate Pressure Relief Valve

1. Before proceeding, verify that the relief valve outlet has been piped to a safe place of discharge, avoiding any possibility of scalding from hot water.

⚠ WARNING

To avoid water damage or scalding due to valve operation, a discharge line must be connected to the relief valve outlet and directed to a safe place of disposal. This discharge line must be installed by a qualified service technician or heating/plumbing installer in accordance with the Munchkin Contender installation manual. The discharge line must be terminated so as to eliminate possibility of severe burns or property damage should the valve discharges.

2. Read the temperature and pressure gauge to ensure the system is pressurized. Min. is 10 PSI and Max is 25 PSI. Lift the relief valve top lever slightly, allowing water to relieve through the valve and discharge piping.
3. If water flows freely, release the lever and allow the valve to seat. Watch the end of the relief valve discharge pipe to ensure that the valve does not weep after the line has had time to drain. If the valve weeps, lift the lever again to attempt to clean the valve seat. If the valve does not properly seat and continues to weep afterwards, contact a qualified service technician to inspect the valve and system.
4. If the water does not flow from the valve when you lift the lever completely, the valve or discharge line may be blocked. Immediately shut the unit down per instructions on page 8 and call a qualified service technician to inspect the valve and system.

SECTION IV – OPERATIONS INSTRUCTIONS

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING: If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury or loss of life.

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS

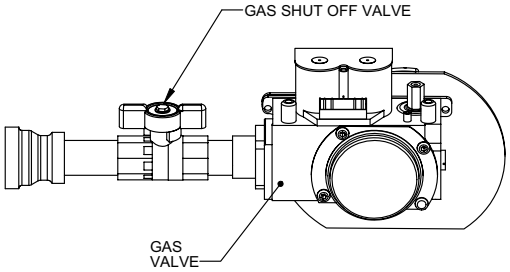
- Do not try to light any appliance
- Do not touch any electric switch; do not use any phone in your building
- Immediately call your gas supplier from a neighbor's phone. Follow the gas suppliers' instructions.
- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to turn the gas control knob. Never use tools. If the handle will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

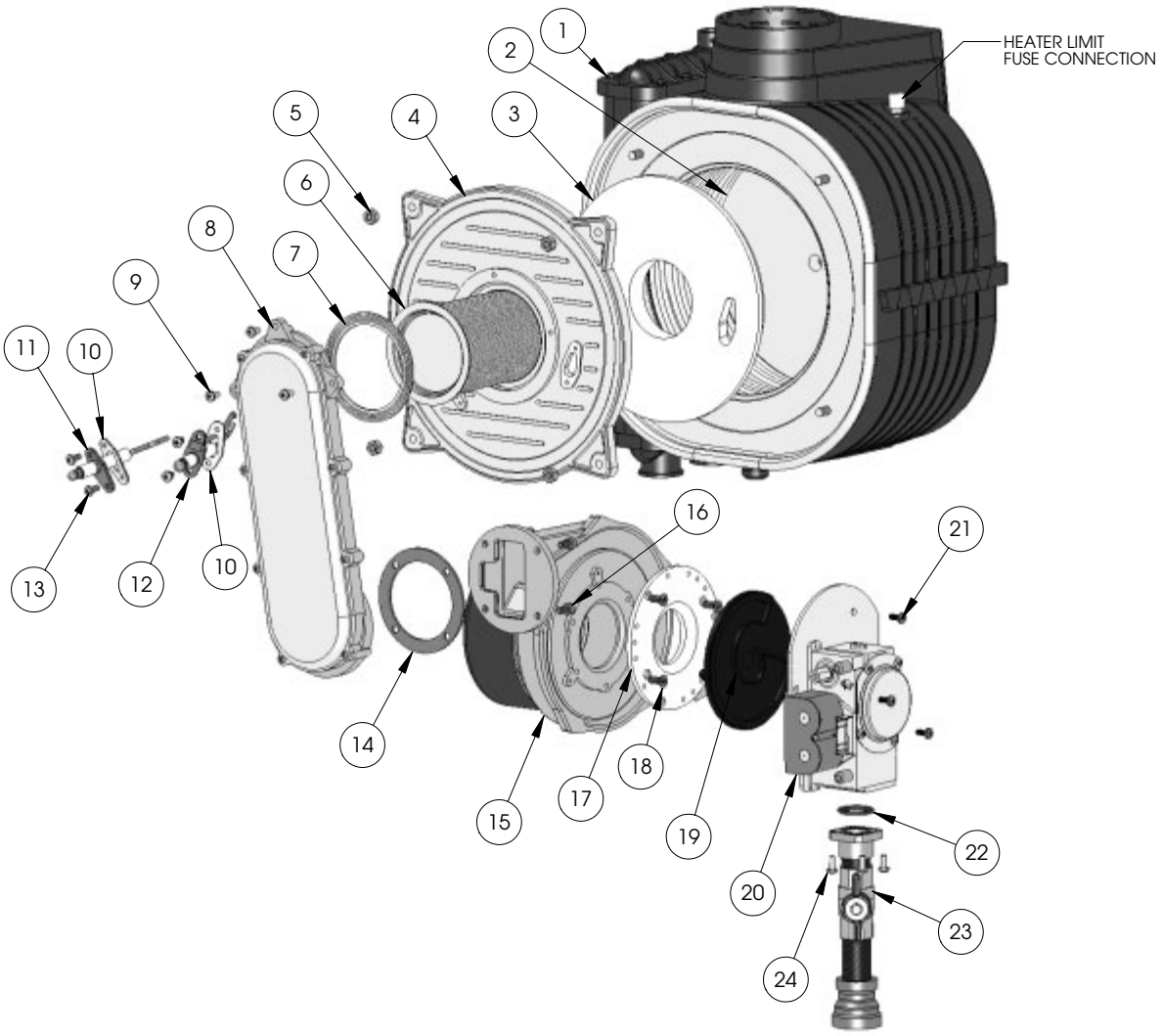


5. Remove front cover.
6. Turn gas shutoff valve clockwise to "off". Handle will be vertical, do not force.
7. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.
8. Turn gas shutoff valve counterclockwise to "on". Handle will be horizontal.
9. Install Front Cover.
10. Turn on all electric power to appliance.
11. Set thermostat to desired setting.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

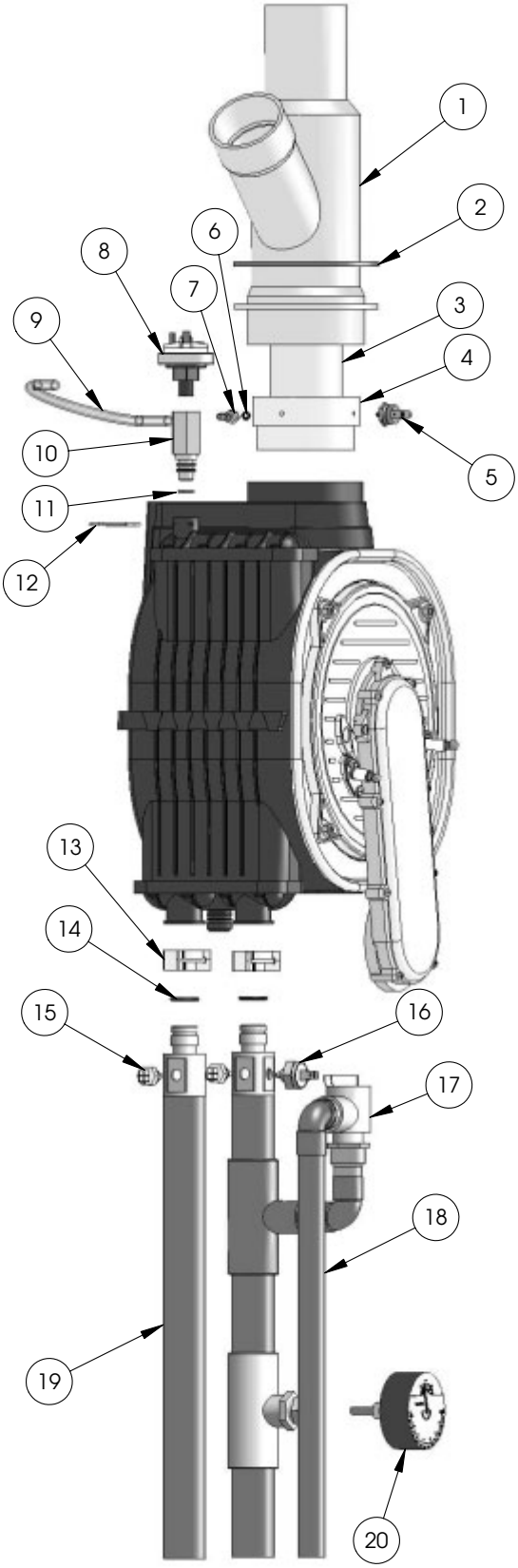
1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove Front Cover.
4. Turn gas shutoff valve clockwise to "off". Handle will be vertical. Do not force.
5. Install Front Cover.

REPLACEMENT PARTS



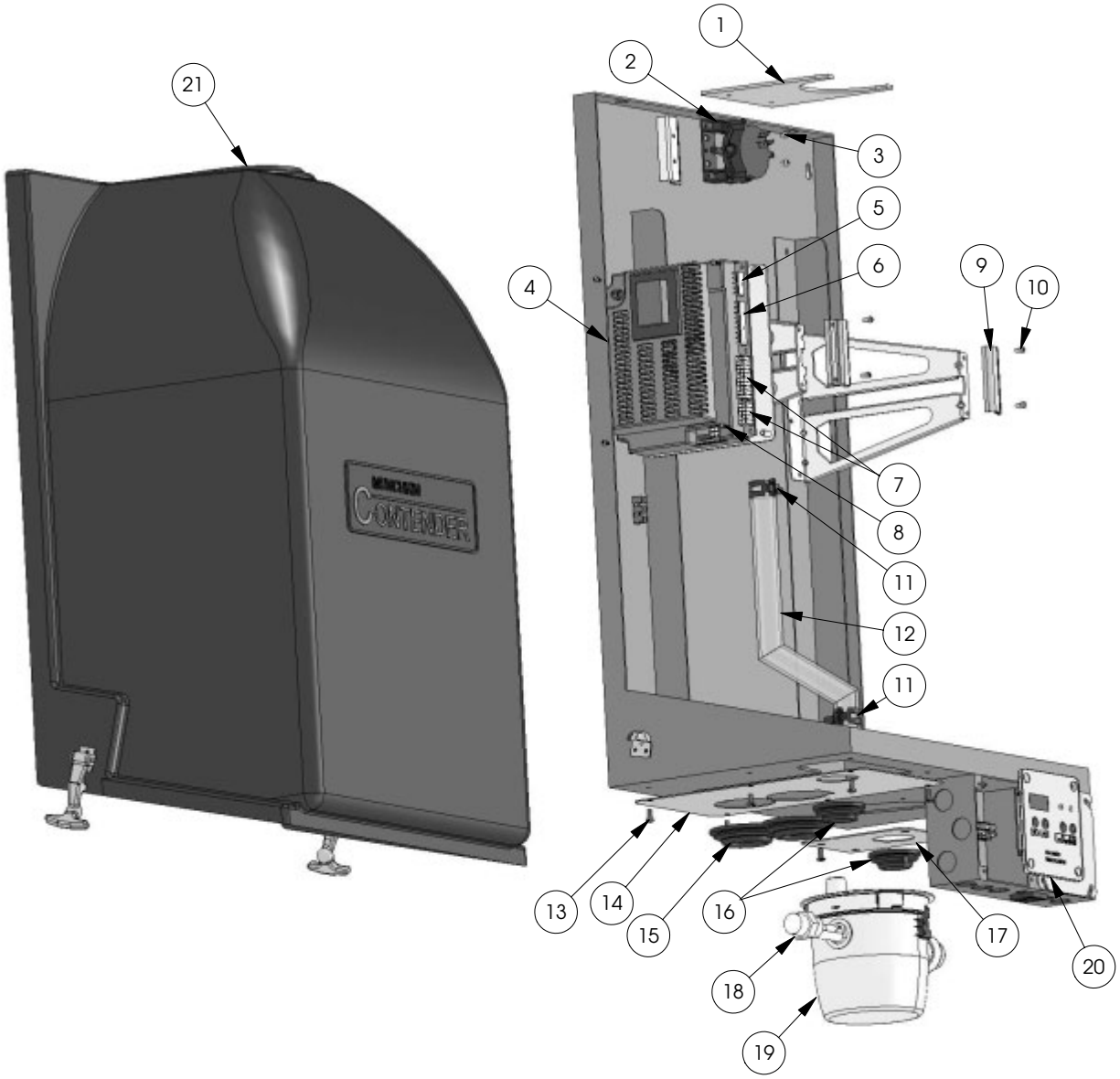
REPLACEMENT PARTS					
Item #	Description	Part #	Item #	Description	Part #
1	Composite Module	7500P-010 (MC50)	13	Screws M4x8 (Probe/Electrode)	7250P-069
		7500P-012 (MC80)	14	Gasket (Air Channel to Combustion Blower)	7500P-075
		7500P-014 (MC99/MC120)	15	Combustion Blower (w/Screws)	7500P-031
2	Ceramic Target Wall	7250P-161	16	Screws M4x7 (Combustion Blower)	7250P-254
3	Burner Door Ceramic Refractory	7500P-076	17	Gas Valve Adapter Plate (w/Screws)	7250P-644
4	Burner Door (w/Nuts)	7500P-078	18	Screws M5x12 (Gas Valve Adapter Plate)	7500P-105
5	Nuts - M6 (Burner Door)	7500P-067	19	Gas Valve Swirl Plate	7500P-091(MC50)
6	NIT Burner	7500P-015 (MC50)			7500P-092 (MC80)
		7500P-016 (MC80)			7500P-093 (MC99/MC120)
		7500P-017 (MC99/MC120)	20	Gas Valve (w/Swirl Plate, Screws)	7250P-448 (MC50)
7	Gasket (Burner)	7500P-074			7250P-449 (MC80)
8	Air/Gas Channel (w/Torx Screws)	7500P-079			7000P-862 (MC99/MC120)
9	Torx Screws (Air/Gas Channel)	7500P-068	21	Screws M4x0.7 (Gas Valve)	7500P-099
10	Gasket (Flame Rec./Spark Electrode)	7250P-005	22	O-Ring (Gas Valve Piping Assy)	7500P-094
11	Flame Rectification Probe (w/Gasket, Screws)	7500P-039	23	Gas Valve Piping Assembly (w/O-ring, Screws)	7500P-095
12	Spark Electrode (w/Gasket, Screws)	7500P-040	24	Screws M4x0.7 (Gas Valve Piping Assy)	7500P-099

REPLACEMENT PARTS (CONTINUED)



REPLACEMENT PARTS		
Item #	Description	Part #
1	Concentric Flue Outlet (w/Gasket)	7500P-025
2	Gasket (Concentric Flue Outlet)	7500P-008
3	PVC Pipe (2" Sch. 40 - 12" Long)	7500P-097
4	Flue Adapter	7500P-007
5	Flue ECO	7500P-002
6	O-Ring (S.S. Barbed Fitting)	7250P-152
7	S.S. Barbed Fitting	7250P-154
8	Water Pressure Switch	7250P-096
9	Clear Tubing 3/16 ID x 5/16 OD	7000P-805
10	Water Pressure Switch Adapter	7500P-003
11	O-Ring (Water Pressure Switch)	7500P-100
12	Water Pressure Switch Clip	7500P-077
13	Supply/Return Manifold Clip	7500P-080
14	O-Ring (Supply/Return Manifold)	7500P-026
15	Thermistor	7250P-059
16	High Limit Sensor	7500P-033
17	Relief Valve	7250P-080
18	Supply Manifold Assembly (w/O-Ring, Relief Valve, Temperature/Pressure Gauge)	7500P-029
19	Return Manifold Assembly (w/O-Ring)	7500P-030
20	Temperature/Pressure Gauge	7500P-098

REPLACEMENT PARTS (CONTINUED)



REPLACEMENT PARTS					
Item #	Description	Part #	Item #	Description	Part #
1	Cover Filler Plate(w/Screws)	7500P-044 (MC50/MC80)	12	Condensate Hose (clear)	7500P-057
		7500P-032 (MC99/MC120)	13	Screws 8-32x3/8 (Filler/Gas Inlet Plate)	7500P-047
2	Blocked Vent Pressure Switch	7250P-150	14	Supply/Return Filler Plate (w/Screws)	7500P-022 (MC50/MC80)
3	Screws 8-32x3/8 (Blocked Vent Pressure Switch)	7500P-047			7500P-023 (MC99/MC120)
4	Control Board (w/Screws)	7250P-317	15	Lip Style Grommet - 1"	7500P-050
5	5 Pin Wiring Harness (location)	7500P-055	16	Lip Style Grommet - 1/2"	7500P-049
6	9 Pin Wiring Harness (location)	7500P-054	17	Gas Inlet Plate	7500P-043
7	Low Voltage Wiring Harness (location)	7500P-053	18	Condensate Switch	7500P-041
8	Screws #6 x 1/2 - Control Board	7250P-480	19	Condensate Cup	7500P-090
9	Clamp -Module to Bracket (w/Screws)	7500P-073	20	Control Board Display	7500P-058
10	Screws M4x6 (Clamp)	7500P-069	21	Contender Cover	7500P-027 (MC50/MC80)
11	Spring Clamp - Condensate Hose	7250P-302			7500P-028 (MC99/MC120)

MAINTENANCE NOTES

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